

REMARKS

In this paper, claims 1, 10, 20, 23, 24, 26 and 34-36 have been amended, and claims 2, 5, 18, 19, 21, 22 have been canceled. No new matter has been added by the amendments, support being found throughout the application as originally filed.

Claims 1, 4, 6-10, 12, 14-17, 20, 23-26, 28 and 30-38 are pending, with claims 6-9 having been withdrawn. Reconsideration of this application, as amended is requested.

Claim Amendments, Generally

Claim 1 has been amended to include the recitation of original claim 2, that the top portion is angled in respect to the base.

Claim 20 has been rewritten to independent form, including the limitations of claims 18 and 19, and also including the recitation of a radiused portion adjacent the base.

Claim 23 has been rewritten to independent form.

Claim 24 has been rewritten to independent form, including the limitations of claims 18, 19 and 22.

112 Rejections

Claims 5, 10, 12, 14-24, 26, 28 and 30-38 were rejected under 35 U.S.C. 112, second paragraph. Applicants contend that the amendments made herein address these issues. Withdrawal of the rejection is requested.

The Examiner is invited to telephone Applicants' undersigned representative to discuss these or any further Section 112 issues.

102 Rejections

Claims 18, 19 and 21-22 were rejected under 35 U.S.C. 102(e) as anticipated by Oliver (U.S. Patent No. 6,821,196). Although Applicants do not acquiesce to the properness of this rejection, claims 18, 19 and 21-22 have been canceled, without prejudice, to facilitate prosecution of the remaining claims, rendering this rejection moot.

103 Rejections

Claims 1, 2, 4, 5, 10, 12, 16-22, 25, 26, 28, 32-35 and 38 were rejected under 35 U.S.C. 103(a) as obvious over Hoopman (U.S. Patent No. 5,672,097) in view of Neff (U.S. Patent No. 5,578,099) and Adefris et al. (U.S. Patent No. 6,319,108) alone or further in view of Wei et al. (U.S. Patent No. 5,833,724), and also as obvious over Adefris et al. in view of Hoopman alone or further in view of Wei et al. Applicants disagree with these rejections.

Hoopman and Neff were discussed before in the Office Action of August 10, 2005 and Applicants rebutted those arguments in the response filed November 10, 2005. Summarized, Hoopman provides abrasive articles with a plurality of abrasive composites (comprising polymeric binder and abrasive particles) having various shapes, although there is no disclosure or suggestion of the composites having positive rake angles. Neff provides a single point tool for material removal, the tool having a negative rake angle, a neutral rake angle, or a positive rake angle.

The current Office Action attempts to turn to Adefris et al. for abrasive composites having a positive rake angle with respect to the base. The right-most composite of each of Figures 1 and 4 is illustrated having a positive rake angle on both visible sidewalls of the composites. These composites are composed of individual abrasive particles dispersed in a porous ceramic matrix. The composites of Adefris et al. are not composed of polymeric binder, as are the abrasive composites recited in the pending claims.

As for the disclosure of Wei et al., it is to abrasive articles having a functional powder (such as abrasive particles) on a surface.

Claim 1 has been amended to recite that the planar top portion is at an angle in respect to the base. Independent claims 10, 26 and 34 also recite that the planar top portion is at an angle in respect to the base. There is no teaching or suggestion in any single reference, Hoopman, Neff, Adefris et al., nor Wei et al., of having a composite with sidewalls and a planar top that is angled in respect to the base, nor is there a teaching or suggestion of such a structure in any combination of these references. Adefris et al. discloses that its ceramic composites could be truncated pyramids. The Office Action states, without any supporting documentation, that the broad interpretation of "truncated" encompasses an angled top. Applicants disagree, and request a showing of support for such a broad interpretation. Even if one were to define "truncated" as including a planar, angled top, there is no teaching or suggestion in any single reference, Hoopman, Neff, Adefris et al., nor

Wei et al., or in any combination of these references, of having a composite including polymeric binder and abrasive particles with the positive rake angle on a sidewall and with the angled planar top.

Claims 12, 24, 28, 35 include the recitation that the top planar surface includes abrasive particles disposed thereon. The Office Action states, in a broad sweeping statement, that it would have been obvious to one skilled in the art to provide such in order to assist removing material from a workpiece, and attempts to turn to Wei et al. for a clear showing that application of a functional powder to the surface assists in the abrasive cut. The functional powder of Wei et al. can impart unique grinding characteristics to the abrasive products (col. 5, lines 9-12) or modify the abrasive qualities, such as cutting more aggressively or reducing the buildup of swarf or static charge on the surface, or act as a release agent or otherwise reducing sticking problems (col. 2, lines 46-52). As admitted in the Office Action, however, there is no suggestion of having abrasive particles on a top planar surface of a composite.

Applicants contend, that at least for these reasons, particularly that no single or combination of references teaches or suggests having a composite including polymeric binder and abrasive particles with the positive rake angle on a sidewall and with the angled planar top, the pending claims are not obvious over any combination of Hoopman, Adefris et al., Neff, and Wei et al. Withdrawal of these rejections is requested.

Claims 1, 2, 4, 5, 10, 12, 16-22, 25, 26, 28, 32-35 and 38 were also rejected under 35 U.S.C. 103(a) as obvious over Kaisaki et al. (U.S. Patent No. 6,194,317) alone or in view of Wei et al. (U.S. Patent No. 5,833,724). Claims 34-35 and 38 were rejected under 35 U.S.C. 103(a) as obvious over Kaisaki et al. in view of Hoopman alone or in view of Wei et al. Applicants disagree with these rejections.

Although Kaisaki et al. provides abrasive articles that include abrasive composites, which can have various shapes, including a truncated pyramidal shape, as illustrated in Fig. 6. Kaisaki et al. also provides that the composites can have a positive, zero or negative taper. Although Applicants do not acquiesce that the "positive, zero or negative taper" teaches a positive rake angle as recited by the pending claims, this issue is not belabored herein. Kaisaki et al. does not teach, and does not suggest, having an angled planar top surface.

As before, the Office Action states, without any supporting documentation, that the broad interpretation of "truncated" encompasses an angled top. Applicants disagree, and request a showing of support for such a broad interpretation. The Office Action attempts to use the support that because Kaisaki et al. suggests that any shaped composite can be used, that a composite with an angled planar top is suggested. Applicants disagree with the rationale, which requires hindsight reasoning for a suggestion of an angled planar top.

Further, as before, Wei et al. is used as an attempt to provide abrasive particles on the planar top. There is no suggestion of having abrasive particles on a top planar surface of a composite, the composite including an undercut portion.

Applicants contend, that at least for these reasons, particularly that no single or combination or references teaches or suggests having a composite including polymeric binder and abrasive particles with an undercut portion and with the angled planar top, the pending claims are not obvious over any combination of Kaisadi et al., Hoopman and Wei et al. Withdrawal of these rejections is requested.

For these reasons, and for others not detailed herein, Applicants contend that it would not have been obvious to one skilled in the art of abrasive articles to arrive at the pending claims. Withdrawal of these rejections, and a Notice of Allowance, is requested.

Allowable Subject Matter

Claims 14, 15, 23, 24, 30, 31, 36 and 37, those claims reciting a radius portion on the undercut or positive rake angle sidewall, were indicated having allowable subject matter.

Claims 23 and 24 have been rewritten into independent form, incorporating all of the limits of the base claims and any intervening claims.

Claim 20 has also been rewritten into independent form, incorporating all of the limits of the base claims and any intervening claims, and including the recitation of a radiused portion.

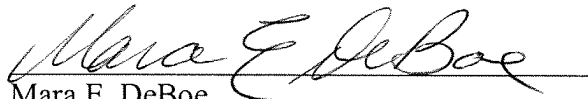
Claims 14, 15, 30, 31, 36 and 37 remain dependent claims. Applicants contend that claims 10, 26 and 34, the independent claims from which these claims ultimately depend, are patentable, at least for the reasons provided above.

SUMMARY

In view of the above amendments and remarks, Applicants respectfully request a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone Applicants' attorney Dan Biesterveld, Reg. No. 45,898, at 651.737.3193.

Respectfully submitted,

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